

is used chiefly to put out small outdoor fires. Pumpers used for fighting grass or brush fires carry a tank of water and such tools as shovels and rakes.

Ladder Trucks. There are two kinds of ladder trucks—*aerial ladder* and *elevating platform*. An aerial ladder truck has a metal extension ladder mounted on a turntable. The ladder can be raised as high as 100 feet (30 meters), or about eight stories. An elevating-platform truck, commonly called a *snorkel*, has a cage-like platform that can hold several persons. The platform is attached to a lifting device, either an *articulating boom* or a *telescoping boom*, which is mounted on a turntable. The boom on the largest trucks can extend 150 feet (46 meters). A built-in hose runs the length of the boom and is used to direct water on a fire.

Ladder trucks are equipped with portable ladders, stretchers, and first-aid kits. They also carry *forcible entry tools* to break into a building or a room. These tools include axes, power saws, and sledge hammers.

Rescue Trucks are enclosed vehicles equipped with many of the same kinds of forcible entry tools that ladder trucks carry. But rescue trucks also carry additional equipment for unusual rescues. They have such tools as oxyacetylene torches, for cutting through metal, and hydraulic jacks, for lifting heavy objects. They also carry scuba gear, fire-resistant suits, and emergency medical supplies and equipment.

Special Fire Vehicles include *airport crash trucks* and *fireboats*. Airport crash trucks are pumpers that spray foam or dry chemicals on burning aircraft. Water is ineffective against many aircraft fires, such as those that involve jet fuel, gasoline, or certain aircraft metals. Fireboats fight fires on ships and piers and in waterfront buildings. These boats have pumps that draw water from a river, lake, or ocean. Large seagoing fireboats can pump about 10,000 gallons (38,000 liters) of water per minute.

Protective Clothing. Fire fighters require special clothing for protection against flames, falling objects, and other hazards. They wear knee-length coats made of fire-resistant material and protective pants and shirts. Other clothing includes specially made boots, gloves, and helmets. Fire fighters also use masks to avoid inhaling smoke and toxic gases. The masks are connected to small air cylinders strapped on the back.

On certain rare occasions, fire fighters must walk through flames. For instance, they may do so when rescuing passengers from a burning airplane. They then wear *heat-reflective suits*. These suits are fire resistant and coated with aluminum to reflect heat. They cover the whole body, leaving no part unprotected.

Kinds of Fire Departments

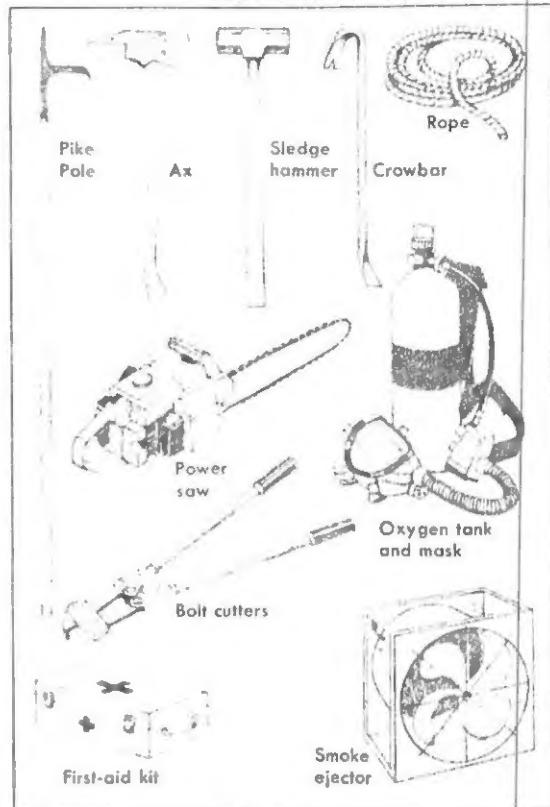
The main kinds of fire departments are (1) volunteer, (2) paid, and (3) special purpose. About 27,000 volunteer and paid fire departments protect communities in the United States. Most of these departments are volunteer organizations. Special-purpose departments are maintained by certain government agencies and some private industries.

Volunteer Departments provide protection mainly in small towns and rural communities. They are staffed by men and women who serve part time. Some departments have a few paid fire fighters but rely chiefly on volunteers. When a fire breaks out in the community,

Some Equipment Carried on Fire Trucks

Fire trucks carry a variety of *forcible entry tools*, such as axes and crowbars, which are used to break into a building or room. Other equipment on fire trucks includes first-aid kits, oxygen tanks and masks, and smoke ejectors.

WORLD BOOK illustrations by David Cunningham



Chicago Fire Department

Protective Clothing worn by fire fighters includes helmets, knee-length coats, gloves, and boots. The clothing protects fire fighters from flames, water, and other job hazards.

FIRE DEPARTMENT

Fire Alarm Boxes stand on street corners in most large cities. Some of these boxes operate by telegraph. Others contain a telephone or two-way radio. The telegraph boxes send a coded signal to alarm headquarters when a person pulls the lever. The signal indicates the location of the box. The boxes that have a telephone or two-way radio are used to talk directly to operators at the alarm center.

Automatic Signaling Devices are installed in many public buildings. These devices include smoke and heat detectors that are wired to send an alarm automatically to alarm headquarters. A *sprinkler system* can also be wired to alert the fire department automatically. Such a system consists of a network of pipes installed throughout a building. The pipes carry water to nozzles in the ceiling. The heat from a fire causes the nozzles directly above the fire to open and spray water. When the water starts to flow through the pipes, an alarm is automatically sent to the fire department.

Alarm Headquarters in a small fire department may

consist of one switchboard operator. Some large fire departments have a computerized system of receiving alarms and notifying fire stations.

After fire fighters arrive at a fire, they advise alarm headquarters how serious the situation is and, if necessary, ask for more help. With each call for additional help, more equipment and companies are sent to the fire. Each fire truck has a two-way radio for communication with headquarters.

Fire Trucks. Fire departments have several types of fire trucks. The main kinds are (1) pumpers, (2) ladder trucks, and (3) rescue trucks.

Pumpers have a large pump that takes water from a fire hydrant or other source. The pump boosts the pressure of the water and forces it through hose lines. The size of a pump is determined by the amount of water it can discharge per minute. The most common sizes deliver 750 to 1,500 gallons (2,840 to 5,680 liters) per minute.

Pumpers carry several sizes of hoses and nozzles. Many pumpers also have a small-diameter hose called a *booster line*, which is wound on a reel. The booster line

Three Kinds of

Fire Trucks

The illustrations below show an elevating platform truck, a pumper, and an aerial ladder truck.

All three trucks are used to spray water on a fire. Elevating platform and aerial ladder trucks can also be used to rescue people through the windows of a burning building.

WORLD BOOK illustrations by George Suyoka

